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# THE FARM INDEX

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April 1968

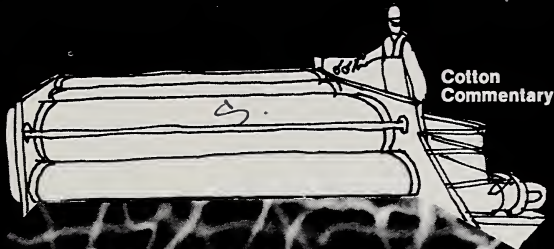
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## THE AGRICULTURAL OUTLOOK

Following a year of heavy diversion and one of the worst growing seasons in memory for **cotton**, growers intend to plant 17 percent more cotton acreage than last year.

Dry soils and cold weather in the Southeastern States and cold, wet weather in the Central States have caused some delay in land preparation. But there is still time to catch up. Above-normal rainfall delayed planting in parts of Texas, while in far western States, preparation of land is in progress.

Growers' intentions are to plant 11,108,000 acres to cotton.

Signup for the 1968 cotton program totaled 13.4 million acres through March 14, near the end of the signup period. Intended diversion on this acreage amounts to 3 million acres, or about 22 percent. For the 1967 crop, producers with about 14 million acres signed up to remove about 4.6 million acres from production—an acreage diversion of 33 percent.

Aside from the rise in cotton acreage, an increase is also indicated for the major oilseed crop. **Soybeans** are expected to set a new high for the eighth consecutive year, with an increase of 1.1 million acres, or 3 percent. The largest expansion is expected in the important North Central Region.

Planting intentions for the 17 crops included in the Crop Reporting Board's March 1 survey total 251 million acres. This is about 6 million acres, or 2 percent less than last year.

The biggest drop expected is 6.0 million acres for **corn**, with all areas of the country except the Northeast contributing to the 8-percent decline. Sharpest decreases are in prospect for the Corn Belt States. Downward trends continue in the South Central States.

If the intended corn acreage is realized and the proportion of corn acreage for grain is in line with recent years, the 1968 corn crop would total 4.4 billion bushels—assuming also that yield equals the average with an allowance for trend. A crop this size would be about 6 percent below the record 1967 crop of 4.7 billion bushels but 15 percent above the 1962-66 average.

Acreage for **sorghums** is expected to total 17.0 million, 12 percent below last year but 3 percent above average. Considerable change in this is possible because plantings can be made later than for most other grain and row crops. Abandonment of fall-sown grains, and soil moisture near planting time, will effect actual plantings.

The decreases in corn and sorghum acreages reflect increased participation in the 1968 Feed Grain Program, permitting farmers to divert up to half their corn and sorghum base acreage, or 25 acres, whichever is larger.

On the other hand, acreage for **oats** and **barley** is expected to be up slightly.

The total prospective acreage of feed grains is about 6 percent less than in 1967.

**Durum wheat** plantings are expected to total 3.4 million acres, a rise of 20 percent over last year and 43 percent above average. **Other spring wheat** prospective acreage planted, at 9.5 million acres, is 12 percent less than in 1967, but 5 percent above average.

**Fed cattle** prices have been keeping their early 1968 strength, averaging more than \$2 over last year's level through March. Increased marketings this spring should produce some price weakness, but they are expected to remain above last spring's \$25.30 average.

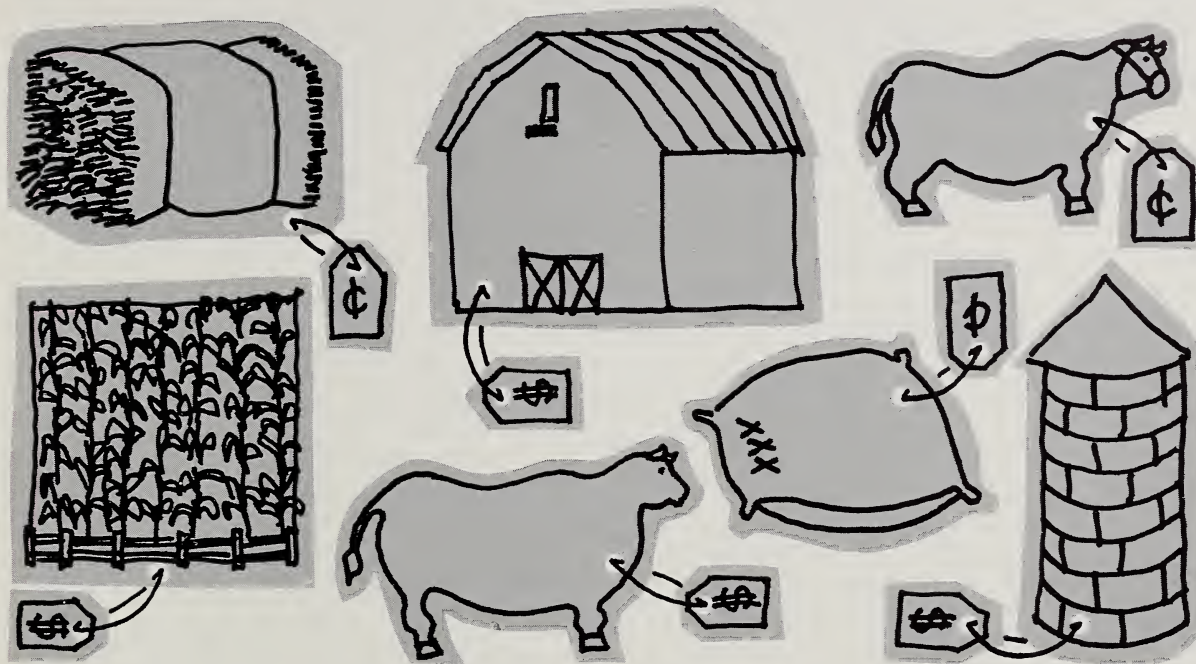
The higher prices thus far this year reflect continued strong consumer demand for meat, light average slaughter weights of fed cattle, and little change in total red meat supplies from a year earlier.

Higher average milk prices, lower canner and cutter cow prices, and more favorable milk-feed price ratios in 1967 played a part in slowing the decline in dairy cattle numbers.

The number of **milk cows** and **heifers** 2 years and older fell 3½ percent during 1967, compared with 5 and 6-percent drops during the previous 2 years.

Slaughter of cows and calves will continue to be below year-earlier levels, partly due to the smaller dairy herd. Culling of beef cows is likely to hold near 1967 levels—the lowest since 1960. A larger proportion of calves are being fed than formerly, and this also tends to reduce the available supply of veal calves.

# Feed Figures



*Cattle feeding is big business in about two-thirds of the country. Variations in climate, costs, and facilities change the complexion of the industry from region to region.*

A farmer, with a little arithmetic, may be able to determine just how much it costs him to produce a pound of beef in his cattle feeding operation.

But he might be hard put to find a meaningful way to compare his business with cattle feeding operations in other regions of the country.

Cattle feeding is an important agricultural enterprise in about two-thirds of the States and is also one of the most varied in scope of operation.

Numbers of cattle on feed may range from a supplementary enterprise on some crop-livestock farms to thousands of graded steers in commercial feedlots.

Feeds include almost every edible product, and feeding methods run the gamut from hand feeding in a single trough to automated electronic systems.

Costs of feed usually amount to about 75 percent of the total cost of cattle feeding. But actual prices for feed vary greatly. In the Midwest, where farmers often grow their own feed, costs are relatively low. In the feed-deficit areas of the Southwest, they are comparatively high.

High costs of feed, however, are often partially offset by relatively low costs of other inputs.

Initial investment in cattle feeding facilities is an important

factor. It ranges from \$30 a head for the large feedlots of the Southwest to around \$300 a head for the environmentally controlled confinement units used by some feeders in the Midwest.

The large size of feeding operations in the Southwest and Plains States—where feedlots run to capacities of 10,000 to 15,000 head—tends to minimize unit investments in feeding facilities. Feedlots in these areas are usually centered around a feed mill and storage facilities.

Size is also important to the midwestern farmer-feeder, but most economies of scale are realized by the time the feedlot reaches a capacity of 1,000 head. Conventional facilities of this size commonly cost \$100 to \$125 per head of capacity.



Feed storage requirements in the Southwest also can be kept relatively low because the large-scale feeders buy feed throughout the year. Midwest farmers, growing their own feed, usually have to invest in elaborate feed storage equipment in order to keep feed losses to a minimum after harvest.

Labor and overhead costs, too, are considerations.

Labor costs for feed handling can range from those under near-automation—with a labor requirement of 2 hours or less per head—to costs of manual methods that require 20 or more hours per head during the fattening period.

Overhead expenditures for buildings, equipment, maintenance, taxes, and insurance amount to 10 to 12 percent of the initial investment in buildings and 15 to 18 percent of the initial investment in equipment. As in the case of labor, the actual outlays depend on the type of feeding operation maintained.

Returns from cattle feeding are difficult to generalize because of the variability in year-to-year prices and the difference in cost-price spreads between feeder and fat cattle from region to region.

Viewed as separate from the total farming operation, cattle feeding on a general crop-livestock farm often looks like a losing venture. However, it generally adds to the farm income if it utilizes equipment, housing, and forage that would otherwise lie idle.

But when small, supplementary enterprises move in to the competitive zone, the nature of costs changes. Cattle must then pay for all production costs—and in many intermediate size operations, it is apparent that this does not happen.

Large-scale feeders often have superior bargaining power through volume, close contact with packers and sources of feeders and feed, and knowledge of the market. (1)

## Up Last Year, U.S. Milk Production Running Below Average in Early '68

Over a thousand gallons is a lot of milk. That's what an average American cow produced (8,821 pounds) last year.

Output per cow in 1967 was up 3.7 percent from the previous year, compared with a 3.4-percent average annual rise from 1957 to 1966.

However, the rate of gain slowed during the year, from 5 percent in January–March to about 1.5 percent in December.

Total U.S. milk output in 1967 was 119.3 billion pounds.

Milk production in January of this year was 9.6 billion pounds—down 2.4 percent from a year earlier and 5.8 percent under the 5-year January average.

Poor quality forage is being fed in many of the Northeast and Midwest dairy areas. Also, the increase in grain and concentrate feeding has not been as great as in other recent years.

Average output per cow—at 724 pounds in January—was up only 1 percent over 1967.

Milk production is likely to continue under year-earlier levels through the first half of 1968 and may total less for the year than in 1967.

The drop in milk cow numbers has slowed. On January 1, there were 14.7 million cows and heifers 2 years old and over kept for milk on U.S. farms. This was only 3.5-percent fewer head than we had at the start of 1967, and the smallest reduction since 1963.

During 1968, dairy cow numbers are expected to decline at near the 1967 rate.

Meanwhile, the trend toward fewer but larger dairy herds continues, according to data recently released from the 1964 Census of Agriculture. These data give more insight into the changing dairy picture than our most recent aggregate figures.

During the past 25 years, herds of 30 or more cows increased rapidly, both in number and in volume of whole milk sales. These herds comprised only 13 percent of all dairy herds even in 1964. But they accounted for over half the milk cows and almost two-thirds of whole milk sales. In 1949, these larger-size herds represented only about one-fourth of whole milk marketings.

Feeding rates for all livestock, including dairy cows, are expected to continue heavy during the current feeding year, which began in October. Feed grain and other concentrate supplies are estimated about 5 percent above a year earlier, and feed grain prices for the first 5 months have averaged about 15 percent below a year earlier.

Milk prices in January and February of this year averaged about 2.7 percent ahead of a year earlier. The price increase was due primarily to premiums producer organizations negotiated above minimum Class I price levels.

The February price farmers received for all milk averaged \$5.21 per 100 pounds, up 15 cents from a year ago. Milk eligible for the fluid market averaged \$5.66, up 17 cents. (21)

## Nonfarm Sources Account for a Third Of Farm People's Per Capita Incomes

At \$1,831, the preliminary estimate of the per capita personal income of the U.S. farm population from all sources in 1967 was down about \$9 from 1966.

After personal taxes, farm residents ended up with an average of \$1,692 in their pockets in 1967. This was about 1½ percent less than in 1966 when the per capita disposable personal income of farm people reached an alltime high of \$1,717.

Income from farm sources, estimated at about \$1,200 last year,

**FRUIT FACTS:** About 8.9 million tons of noncitrus fruit worth approximately \$1 billion were harvested by 48 States in 1967. California was far and away the leading producer. The Golden State's many fruits accounted for over half the total U.S. output of deciduous fruits in 1967. Washington ranked a distant second with about 11 percent. (2)

Fruit	Production in 1967 <sup>1</sup>		
	U.S. total	Leading States	Share of total output
	1,000 tons		Percent
Grapes	3,007	California	89
		New York	5
		Washington	2
Apples	2,731	Washington	24
		New York	17
		Michigan	10
Peaches	1,350	California	66
		South Carolina	6
		Georgia	6
Plums and prunes	543	California	87
		Idaho	3
		Michigan	2
Pears	455	Oregon	33
		Washington	31
		California	26
Strawberries	239	California	44
		Oregon	20
		Washington	7
Apricots	148	California	97
		Washington	2
		Utah	1
Sweet cherries	108	Oregon	35
		Washington	23
		Michigan	16
Tart cherries	83	Michigan	51
		New York	28
		Wisconsin	7
Cranberries	71	Massachusetts	39
		Wisconsin	35
		New Jersey	11
Other noncitrus <sup>2</sup>	186	California	93
Total	8,921	California	50
		Washington	11
		New York	7

<sup>1</sup> Preliminary. <sup>2</sup> Includes avocados, dates, figs, nectarines, olives, persimmons, and pomegranates.

## Study Relates Oklahoma Off-Farm Jobs To Income From Acreage and Capital

Assume a livestock farmer in East or South Central Oklahoma nets \$3,000 annually on 459 acres of average-yielding land and a \$62,906 capital investment.

He wants to increase his earnings to \$5,000. How does he go about it?

An Oklahoma study using data from a few years back suggests some of the possibilities.

The study was limited to beef producers—those with stocker-feeder and cow-calf systems—and related operations.

Prices received by farmers, off-farm wages received by farmers, and prices paid for production items and labor were based on averages in effect in the Oklahoma area at the time the data were gathered.

To net \$5,000 from his farm, the operator would have to enlarge his capital investment to \$93,495 and increase the size of his place to 682 acres.

Or he might cut his farming down to half-time and work half-time elsewhere. In this case he would need 527 acres and a \$72,271 capital investment in his farm to net \$3,500 a year from farming and \$1,500 from off-farm work.

A third possibility is for the farmer to look for a full-time off-farm job and do his farmwork on weekends and evenings. In this case, he would need 393 acres and a \$52,780 capital investment in his farm to net \$2,000 a year from farming and \$3,000 from off-farm work.

The full-time off-farm job for 40 hours per week is assumed to net the farmer \$3,000 a year; the half-time off-farm job, \$1,500. Opportunities to earn higher wages for off-farm work would cut down the size of the farming operations needed to bring income up to the \$5,000 a year desired by the operator. (3)

was \$41 less than in 1966. However, per capita personal income from nonfarm sources increased \$32 from 1966 to about \$631 last year.

Last year, the disposable personal income per capita of the farm population averaged close to 61 percent of the average \$2,796 income of nonfarm people.

This ratio was slightly below the 1965-66 level, but well above the 55 percent at the beginning of the 1960's.

There was a further decline in the farm population last year to around 11 million. It now represents about 5½ percent of the U.S. total, compared with almost 9 percent in 1960. (22)



## Dry Fertilizer Favored in Arkansas For Soybeans, Cotton, and Pasture

From 1959 to 1964, the amount of fertilizer used on Arkansas cropland for soybeans, cotton, and pasture showed a steady increase. At the same time, the amount of acreage planted to cotton and pasture dropped.

The use of dry fertilizer rose over 100 percent for soybeans, and in smaller amounts for the other two crops. Statewide, use of dry fertilizer rose about one-third. Use of liquid fertilizer rose 78 percent on cotton and over 100 percent on pasture.

On the whole, the use of plant

nutrients dropped slightly on cotton but rose over 100 percent on soybeans and pasture.

In contrast to most other cost items on a farmer's budget, the price of fertilizer has remained relatively stable in recent years. Modern methods of marketing, blending, and field spreading have made it possible to use fertilizer more efficiently.

The rising cost of farming is making it necessary for farmers to increase their yield per acre by the use of more fertilizer and other improved practices.

Acreage allotments for cotton and favorable price outlooks for soybeans also influence the pattern of fertilizer usage. (4)

### FERTILIZER USE RISES ON ARKANSAS SOYBEANS, COTTON, AND PASTURE

	1959	1964	Percent change
<b>Soybeans:</b>			
Cropland (percent of State total)	40.8	48.6	+20
Fertilizer (tons)			
Dry	24,391	55,878	+129
Liquid	641	73	-89
Plant nutrients (tons)			
Nitrogen (N)	94	244	+160
Phosphorus (P)	2,174	4,765	+119
Potassium (K)	4,788	10,916	+128
<b>Cotton:</b>			
Cropland (percent of State total)	22.9	20.2	-12
Fertilizer (tons)			
Dry	157,637	161,769	+3
Liquid	22,720	40,553	+78
Plant nutrients (tons)			
Nitrogen (N)	42,585	45,626	+7
Phosphorus (P)	6,672	6,176	-7
Potassium (K)	22,703	17,354	-24
<b>Hay and Pasture:</b>			
Cropland (percent of State total)	14.2	11.4	-20
Fertilizer (tons)			
Dry	31,602	42,590	+35
Liquid	411	1,017	+147
Plant nutrients (tons)			
Nitrogen (N)	616	4,798	+679
Phosphorus (P)	1,470	2,276	+55
Potassium (K)	1,361	2,937	+116
<b>Statewide Use (including nonfarm)</b>			
Fertilizer (tons)			
Dry	304,301	404,664	+33
Liquid	33,106	55,528	+68
Plant nutrients (tons)			
Nitrogen (N)	65,611	88,918	+36
Phosphorus (P)	13,839	20,113	+45
Potassium (K)	36,522	44,637	+22

## Eggs Break Records: At 70 Billion, Output in 1967 Hit an Alltime High

Egg production in 1967 reached a record 70.2 billion eggs—5½ percent above the previous high of 66.5 billion in 1966.

More layers and a higher rate of lay were big factors in last year's gain.

At 318 million, the average number of layers in 1967 was at the highest level since the early 1950's and topped 1966 by 4 percent.

The annual rate of lay also rose—to 221 eggs per layer, compared with 218 in 1966 and an average of 214 during 1961-65.

California was the No. 1 egg-producing State in 1967, with a total of nearly 8.1 billion eggs. Georgia ranked second with about 5.0 billion, and Iowa third with 3.5 billion. These States also had the most layers.

Florida, however, was the leading State in the rate of lay, with an average of 233 eggs per layer during 1967. Vermont followed with an average of 231.

With the largest increase in egg production in the postwar period, prices to producers in 1967 dropped sharply to an average of 31 cents a dozen. This was 8 cents under average prices in 1966.

Culling of laying flocks was unusually heavy during most of the year. By December, however, slaughter of mature chickens was down to year-earlier levels as the number of hens that had been in lay a year or more dropped to the lowest level since 1965.

High feed prices and little improvement in the feed-egg conversion ratio during 1967 resulted in greater unit production costs than in 1966.

The 1967 price paid per started pullet averaged \$1.67—1 cent below 1966 prices and 3 cents under the 1965 average. However, other production expenses—such



as interest, taxes, and wage rates—increased in 1967.

The outlook for 1968?

After a slight rise from 1967 this winter, egg output this spring is expected to be near year-earlier levels and to drop below in the second half.

On February 1, there were 324 million layers on U.S. farms—only 1 percent more than a year earlier. Farmers started about 12 percent fewer replacement pullets in the second half of 1967 than the year before. These birds will provide the replacements in the first half of 1968.

The number of layers this year may not be cut as sharply as the replacement rate would indicate, however. Partly because of the younger average age of the laying flock, culling has probably been carried on at a lower rate in the early months of 1968 than in 1967.

Producers' prices for eggs averaged 31.5 cents a dozen this January—6 cents under a year earlier. Prices this spring are expected to average a little above last year's levels, but any increase will be tempered by larger stocks of frozen and shell eggs.

However, with prospects for a moderate cutback in production during the second half of the year, prices after midyear are expected to average above last year's second-half average of 30.3 cents a dozen. (23)

## New Project Pumps Water Over Dam; How To Use It Is Farmer's Choice

The Missouri River has contributed to irrigation development in North Dakota since the first open ditch was cut through the river's banks at the turn of the century.

And now, with congressional approval of the Garrison Diversion Unit of the Missouri River Basin Project, this wide rolling river is being called upon again

to further irrigation development in the eastern part of the State.

When the water comes, there's always the question of how best to apply it: with mechanical and hand-moved sprinklers, or with traditional surface schemes, such as the open ditch and gated pipe methods.

To aid future economic planning, facts about the cost of sprinkler and surface systems presently operating in North Dakota have been gathered by ERS economists, in cooperation with the North Dakota Agricultural Experiment Station.

Researchers found that farms with any type of operating irrigation plans were larger than average, though farm size did not necessarily depend solely on irrigation development. Most had large numbers of livestock—mainly beef cattle—and large acreages of dry cropland, native hay, and pasture.

Farmers who were interviewed said their main reason for irrigating was to stabilize the feed supply for a livestock enterprise.

When sprinkler devices were used, the largest single cost reported was for materials. And when surface methods were applied, the largest cost reported was for land leveling.

For each acre irrigated, the average investment was between \$92 and \$103 for a sprinkler system. For surface systems, it was between \$103 and \$110.

Other costs, included in both types of irrigation schemes, were additional labor, fertilizer, seed and spray, and machine expense.

Regardless of the type of irrigation practice employed, returns from irrigated land exceeded costs for producing all crops except small grains.

Generally, the best returns for crops under irrigation were from corn silage, though alfalfa hay fared well. Wheat returns were low in relation to expenditures for irrigation. (5)

## Cash Grains or Grass for Livestock? North Dakotans Find Some Answers

If you want to know how much of your cropland to convert to grass for cattle feeding, don't base all the figures on the size of your farm. Instead, consider the ratio of cropland to grass and the amount of labor and other resources available.

The size of a farm has apparently little influence on the optimal amount of grass seeding.

This is one of the findings of a recent study conducted by the Economic Research Service and the North Dakota Agricultural Experiment Station. Data were obtained from a 1963 survey of 116 producers in southwest North Dakota. Linear programming was used to analyze three model farms . . . small, medium, and large.

Other findings included:

—Seeding cropland to grass to produce hay is profitable as long as native pasture is available for the livestock.

—Optimal livestock programs usually call for fattening calves or yearlings.

—Seeding grass for early spring pasture usually gives returns similar to those received for barley, oats, or flax.

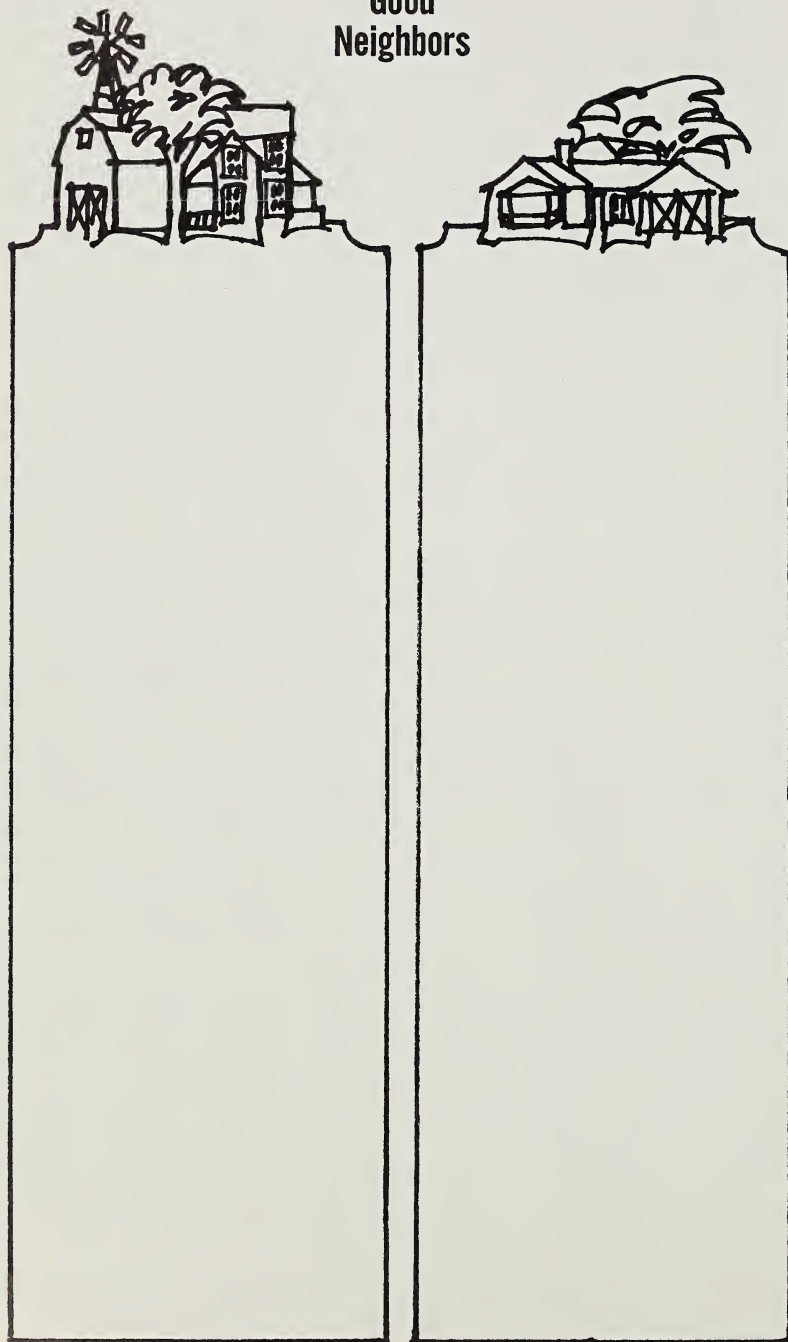
—In some situations, government cost-share payments for grass seeding increased the optimal acreage, but the resulting increase in income was not large.

The study indicated that the actual margin between grass seeding for pasture and cash grains is fairly small.

Don't forget, however, that planting grass requires foregoing income for a period of time while the grass is getting established. At the same time, investments in livestock must be made.

Incomes from cash-grain operations are typically quite variable in this area. (6)

## Good Zoning Equals Good Neighbors



*When farmers and city folk turn into neighbors as suburbs expand, some misunderstandings are inevitable. Local government might use zoning to protect interests.*

As the people go, so goes the city. When people move into the rural-urban fringe, city services usually follow.

Farmers may find themselves frustrated by new building and development when, for example, natural drainage patterns are disrupted.

New suburbanites, on the other hand, may feel that some farming practices just aren't compatible with life in residential areas.

Local county or township governments usually straighten out the problems caused by these divergent interests.

Conflicts might be avoided by the wise use of zoning regulations before the growth of suburbs really begins.

Nearly three-fourths of the 3,000 counties of the United States are authorized to zone. But less than 450 had adopted any sort of zoning ordinance by 1965.

Similarly, there are more than 17,000 organized towns or townships—mostly in the Northeastern and North Central States—and only about 10 percent of these have zoned. As a result, some States have empowered their cities to zone the rural-urban fringe.

What are the best zoning patterns for a developing county in a rural area? Protection of natural resources and agriculture, as well as space for community growth, should be considered. City-gearred planning (and zoning techniques) may not be adequate because of specialized rural needs.

About 45 zoning enabling statutes in 21 States exempt farm land from zoning regulations.



In order to protect the rural nonfarm population too, agricultural use of land in some States is limited to sizable tracts. The minimum size in these cases ranges from 2 to 5 acres.

This protects suburbanites from small agricultural operations that might be objectionable in residential areas, and encourages the farmer to operate in areas where he will have greater freedom.

There are three main classes of agricultural zoning, each suitable for certain community needs.

The first, and the most compatible with residential areas, per-

mits all farm activities except feeding of hogs with garbage and offal. Residential subdivisions, schools, and churches are also permitted. Business and industry, except enterprise related to agriculture, are usually prohibited.

The second type of zoning requires larger minimum lot sizes, from 1 to 5 acres, and encourages agriculture and uncrowded large-lot neighborhoods. The more scattered population demands public facilities and services on a smaller scale.

Subdivision of land into small lots is prohibited. This provides a certain amount of protection

for farmers and related businesses.

The third type of zoning restricts use of an area solely to agriculture and certain public and semipublic enterprises, such as forestry and outdoor recreation. Nonfarm residential areas are prohibited. Minimum tracts range from 10 to 80 acres or more.

Such zoning can be designed to protect either specialized farming areas or general farming. It also provides for some diversification of economy for the whole community, as with recreation areas, while preserving open space. (7)



## Most Middle Agers Are As Young As They Feel—40 to 65, Healthwise

In city and country alike, old age often exhibits the same symptoms: a decline in physical vigor, increasing illness and chronic ailments, and a deepening concern about health care.

But middle age comes before old age. Thus, planners of programs for the elderly may find it useful to look closely at the health orientations of people between 45 and 60 years old.

How do the middle-aged rate their present health? How do they think it will be when they get *old*? Who'll care for them if old age is coupled with bad health?

Answers to these and related

questions, recently put to a representative group of middle-aged Kentuckians, disclosed the following health attitudes:

*Present health.* In self-appraisals of their health, there were no significant differences between those of rural and small city residents or between the men and women in residential areas covered by the study.

Almost seven out of 10 persons rated their present health as "good or very good." Only 6 percent considered their health "poor."

However, more than one-third of the men and women between 45 and 60 admitted that health problems bothered them either constantly or off and on, and had curtailed their usual activities in the past year.

The six ailments of highest frequency for all groups were arthritis and rheumatism, high or low blood pressure, digestive ailments, heart trouble, respiratory problems, and skeletal difficulties—such as bone deterioration.

The ailments apparently played no favorites between rural men and women. But in the city survey, significantly more men than women complained of respiratory and skeletal prob-

lems. The reverse was true for the other ailments.

*Plans for health care.* Answers to the question, "Who will take care of you in your old age if your health becomes very bad?" varied considerably.

Men and women in the city would rely heavily on their wives or husbands. Rural people were counting more on their children for care. Wherever they lived, more women than men said they would go to an old folk's home.

Very few of the middle-aged group in general had definite plans for the future. If they had, the plans were usually oriented more toward financial security (insurance, savings, and pension plans) than toward physical care.

*Health expectations.* About half the interviewees expected their general health in old age to be about the same as now. About a quarter thought it would be somewhat worse. The rest were equally divided between "better" and "much worse."

Only one-quarter of the middle-aged expressed the opinion that doctors treated old people better than young people. Three-fifths thought that oldsters relied more on homemade remedies than people of middle-age. (8)

## To Speed Up Economic Growth, First Step Is Finding Why It Slowed Down

How do you revitalize a lagging economy? Where do you start?

Jobs alone, or education, or any other single factor won't trigger economic growth. Rather, the achievement of a good life for residents of areas with lagging economies rests on a multi-pronged effort to improve job opportunities, to train and educate people, and to upgrade community facilities.

These are the findings of a team of economists and sociologists in ERS and the Arkansas and Missouri Agricultural Experiment Stations. Researchers have been studying the economy of the Ozark Region since the mid-1950's. Their methods of study—and their findings—are of interest not only to Ozark residents, but also to community leaders in other rural areas where economic growth is sluggish.

Here are some of the team's findings:

*Employment opportunities.* Agriculture, once a mainstay of the Ozark economy, is no longer profitable for many rural residents. The region has too many small farms, with too few resources, to return adequate incomes to farm operators.

If incomes are to improve, farm sizes must be enlarged by consolidation. Even then, the remaining operators may have to improve management and resources.

Recreation has opened up new jobs for Ozark residents, but not enough to take up much of the slack. An enterprising farm operator, with a good location, management ability, and the willingness to cater to the needs of tourists, can sometimes turn a profit on recreation. But recreation will pay for only limited numbers of Ozark farmers.



Motels, restaurants, and other businesses geared to tourism also provide jobs for local residents. However, these businesses are often run by outsiders, and local residents are hired for relatively unskilled jobs at low pay.

Nonfarm industries offer the greatest hope for boosting Ozark employment, if they can be induced to locate in the region. Some mobile industries (requiring relatively small fixed investments and staffs of semiskilled labor which are easily trained) have already located in the area. These industries create jobs and stimulate economic growth, but they can also create social problems. One case in point:

A shirt plant established in northern Arkansas created 750 new jobs for Ozark workers. However, almost all the jobs were for women; many men were still unemployed or working only part-time.

While the women's jobs brought about an increase in family incomes and enlivened the

area's economy, they also created social problems which will not be easily solved until jobs can be found for the men.

*Migration.* Out-migration will continue since it is unlikely that the number of jobs will be expanded fast enough to meet the needs of rural residents. But: Are Ozark youth prepared well enough to earn a living in non-farm occupations in urban areas of our Nation?

A study of high school boys in Arkansas found that many were poorly prepared to earn a living in an urban area, or to pursue extensive skill training. Yet without better education and training in nonfarm skills, the outlook for Ozark youth is indeed bleak.

*People.* The Ozark Region's population—its education, employment, housing, income, debts, family composition, and financial assets—is also being studied. When completed, this information should serve as a profile of the available human resources—and as a guide to the kinds of programs needed to develop the potential of Ozark citizens.

An effort is also being made to determine how and where education can best aid Ozark residents in securing and holding skilled jobs.

*Community facilities.* Many homes in the Ozarks are substandard. Many are located in remote areas where community services are scarce. Researchers are studying how housing can be improved and where new housing can be located to make the best of limited community resources for roads, school buses, water, and sewer systems.

The relationship of highway development to area rural development is also being explored. Of particular concern are location factors for new industrial firms in relation to various types of highways, and how recreation developments can best benefit from highway improvements. (9)



## Appalachia's Residents Switch From Farms to Factories To Earn a Living

In its cities and suburbs, Appalachia is enjoying close to its share of the Nation's industrial boom. But low incomes and high rates of unemployment still are typical in its hills and hollows and sparsely settled hinterlands.

During the decade of the fifties, employment in industry grew just about as fast in Appalachia as it did in the rest of the nation—17 percent, compared with 19 percent. But employment in agriculture and mining shrank much faster than in the Nation.

The result: Appalachia ended the decade with only a 4 percent gain in total employment, com-

pared with 15 percent nationally.

One of the brighter hopes for the region, in terms of employment opportunities, appears to be the manufacturing industry. In the 1950's, manufacturing's share of total employment in Appalachia expanded to about one-third, while agriculture's share shrank to only 8 percent.

Nearly all areas of the region had some gain in manufacturing employment. However, most of the new manufacturing jobs were in areas with population centers that were large (100,000 or more) or medium (25,000 to 99,999). In the small population centers (25,000 and under), gains in manufacturing employment were a fraction of the losses in agriculture and mining.

In the large and medium center areas, employment grew most in the industries typically oriented to markets: metals and chemicals, printing and publishing, and manufacture of transportation equipment, electrical and other machinery. These were the industries experiencing the fastest growth nationally during the 1950's.

The small center areas had sizable employment gains in industries typically based on availability of raw materials or inexpensive labor: textiles and apparel, food products, and lumber and wood products, including furniture. On a national basis, these industries were growing very slowly or contracting during the 1950's. (10)

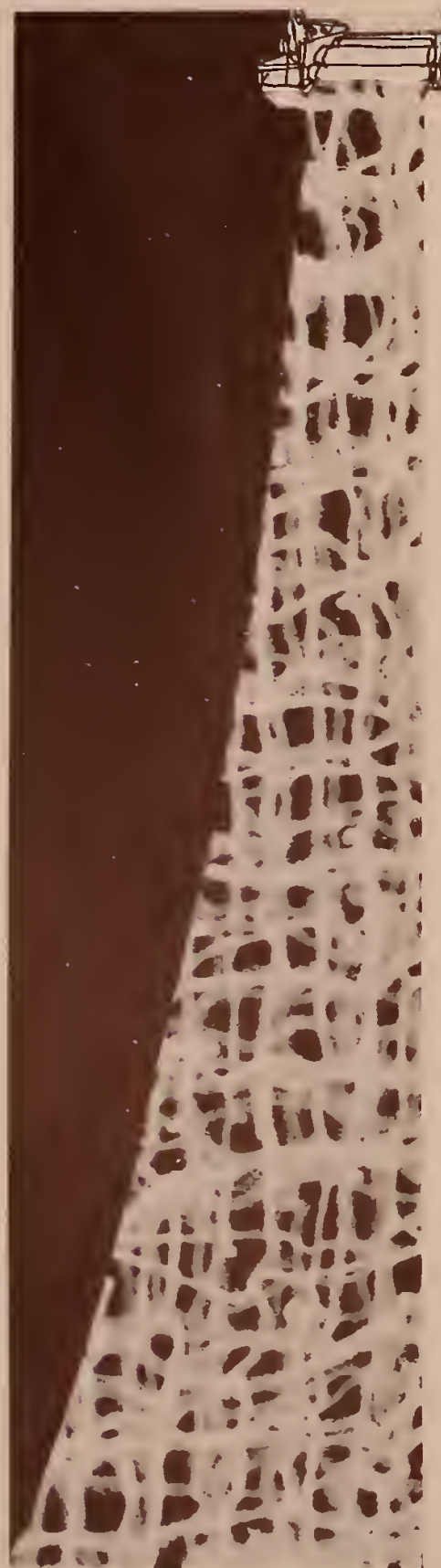
### MANUFACTURING OPENS UP NEW JOB OPPORTUNITIES FOR APPALACHIA'S RESIDENTS

Industry	Change in employment during 1950-60 in —			
	All Appalachia*	Areas with population centers of —		
		100,000 and over	25,000 to 99,999	Under 25,000
		Number		
Transportation equipment (except motor vehicles)	62,367	51,135	10,036	1,196
Electrical machinery and equipment	70,979	42,717	26,390	1,872
Fabricated metals	54,833	31,500	21,348	1,985
Chemicals and products	35,789	26,669	8,358	762
Printing, publishing and products	30,610	22,455	6,990	1,165
Other durable goods	17,088	6,593	7,827	2,668
Machinery (except electrical)	36,321	22,275	12,495	1,551
Food and products	53,750	33,329	15,535	4,886
Apparel and products	64,963	28,429	19,083	17,451
Other nondurable goods	21,061	7,291	12,724	1,046
Primary metals	—6,249	—12,882	6,156	477
Motor vehicles and equipment	15,599	12,159	2,484	956
Furniture, lumber and wood products	—21,510	—10,611	—9,309	—1,590
Textile mill products	—42,801	—31,632	—15,344	4,175
Total manufacturing	392,800	229,427	124,773	38,600

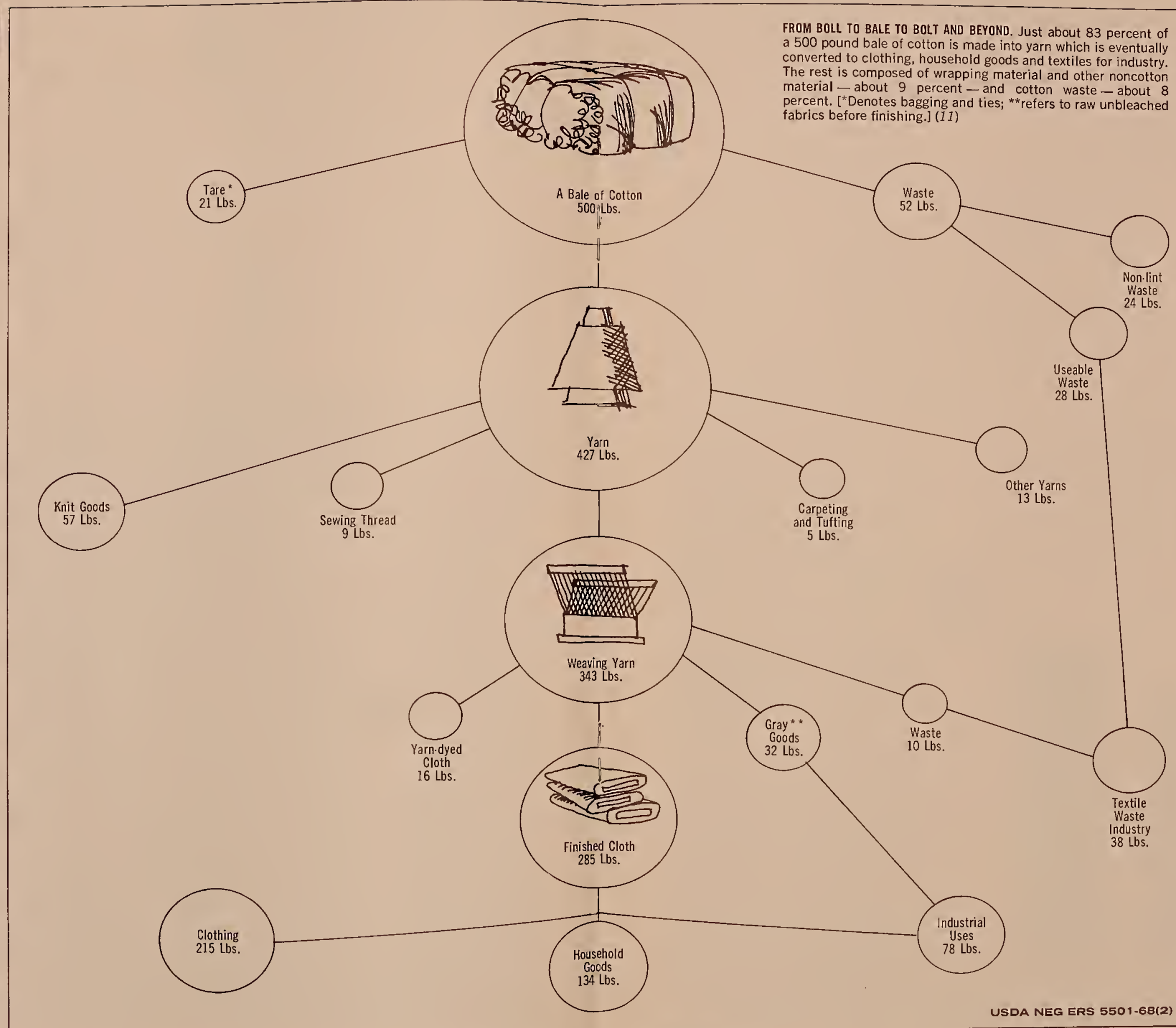
\*Appalachia in this study embraces 448 counties in portions of New York, Pennsylvania, Maryland, Ohio, Virginia, Kentucky, North Carolina, South Carolina, Georgia, and Alabama and all of West Virginia.







# Cotton Commentary



## Cotton Bids for Greater Sales; Use In Fabric Blends Gains Nearly a Half

Big news in the textile trade is the recent rapid growth of blended fabrics, which consist primarily of cotton and manmade fibers.

In 1965, output of blended fabrics accounted for nearly one-fifth of total production of broadwoven goods in the United States, compared with about 14 percent in 1962.

The quantity of cotton consumed in 100 percent cotton broadwoven fabrics, compared with cotton used in fabrics containing manmade fibers, partially illustrates the recent shift to blends.

While output of all-cotton fabrics declined by 419 million linear yards between 1962 and 1965, cotton consumed in fabric blends increased by the equivalent of 237 million linear yards of all-cotton fabric.

*Polyester blends* (where polyester is the major fiber by weight) represented about two-fifths of total blend output in 1965 and, as such, ranked No. 1 in importance.

The fiber most commonly mixed with polyester was cotton, in the ratio of about 65 percent polyester to 35 percent cotton. However, 50/50 polyester-cotton blends increased by 650 percent during 1962-65. These 50/50 blends represented more than 7 percent of total blend output in 1965.

Cotton consumed in all polyester blends more than doubled during 1962-65, rising from the equivalent of 124 million linear yards of all-cotton fabric to 289 million.

*Cellulosic blends* (where rayon or acetate is the predominant fiber) represented slightly more than a third of total blend output in 1965.

Cotton, again, was the fiber most frequently combined with

cellulosic synthetics. Output of 50/50 rayon-cotton blends rose from zero to 197 million linear yards during 1962-65.

The amount of cotton used in all cellulosic blends in 1965 was more than twice the level of 1962—160 million linear yards, compared with 77 million.

*Cotton blends* (predominantly cotton by weight) represented about a fifth of total blend output in 1965, compared with 30 percent in 1962. The quantity of cotton used in these blends dropped from 310 million linear yards to 298 million.

*Acrylic, nylon, and other blends of wool, silk, saran, and glass* represented about 5 percent of total blend production in 1965, compared with 7 percent in 1962. The amount of cotton used in

these blends has remained fairly stable at about 6 million linear yards.

Cotton used in blends, according to a mill survey in 1964, was usually of a higher grade and longer staple length than that used in all-cotton fabrics in the same yarn range.

The average grades of cotton most frequently consumed in blends were Middling White and Middling Plus. A slightly lower grade, Strict Low Middling Plus, is generally used in all-cotton fabrics.

Staple length of cotton in blends averaged 1-1/16 inches, also slightly higher than that used in 100 percent cotton fabrics.

Consumers encounter blends in many forms. Shirts, suits, slacks,

sportswear, and uniforms are among the major items in men's apparel.

In women's apparel, blends are widely used in dress goods, lingerie, suiting, and sportswear. Blends are also showing up more often in various household items, such as sheets.

The recent growth in output and use of blended fabrics is due, in large part, to stepped-up research and promotion, as well as price reductions for noncellulosic synthetics.

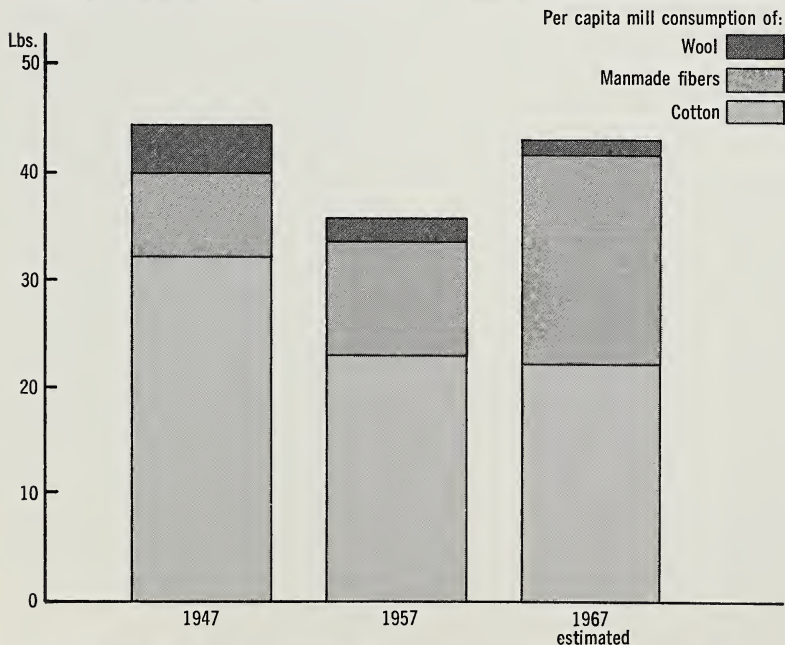
But current cotton research and promotion for all-cotton fabrics may soon alter the recent rapid advances made by fiber blends.

Some all-cotton fabrics have recently been developed with additional abrasion resistance and durable press properties. These improvements will enable cotton to compete better with manmade fibers for certain apparel uses.

The recently enacted Cotton Research and Promotion Act is providing funds, through voluntary producer contributions of \$1 per bale, for additional research and market development programs to promote cotton and cotton textiles. (12)

**RIVALS IN THE FIBER FIELD:** Cotton is still the No. 1 fiber used in making apparel and household furnishings and others items for U.S. consumers. But it no longer holds the dominant position it once held. The 22.4 pounds of cotton consumed per capita in 1967 was down nearly a third from 1947.

Manmade fibers in 1967 accounted for about 45 percent of total per capita fiber consumption in the United States, compared with 16 percent in 1947. Cotton's share has shrunk from about 73 percent to 51 percent. (13)



U.S. DEPARTMENT OF AGRICULTURE

NEG ERS 5502-68(2)

## Ginning Costs High? More Effective Use of Labor and Power Might Help

Power and labor requirements usually get sharpest scrutiny from gin operators who are interested in cutting costs.

Labor often accounts for 20 to 25 percent of total gin operating expenses. And horsepower requirements have been skyrocketing in recent years as more and more machinery and equipment have been added to ginning complexes.

However, recent Economic Research Service studies in major cotton-producing areas indicate sizable savings are feasible.

Using the Midsouth as an example, it is estimated that the



recommended eight-man labor crew in most 12-bale gins could be reduced by at least one man if more efficient operating techniques were adopted.

Among the many improvements now available is an equipment console which groups all major controls and switches. Also, there is a remotely controlled device which requires but a single operator to unload seed cotton.

At the same time, the 561 horsepower usually needed for a 12-bale model gin could probably be reduced by 50 horsepower through the prudent use of correctly sized motors, the upgrading of power factors, and various other means.

These reductions combined would save 30 cents per bale in operating costs if the gin model operated at full capacity.

In other words, labor costs per bale would drop 18 cents—from \$1.61 to \$1.43. And power savings would be 12 cents—a reduction from \$1.35 per bale to \$1.23. On a seasonal basis, total operating costs of \$27,340 would be reduced \$2,772, or 10 percent.

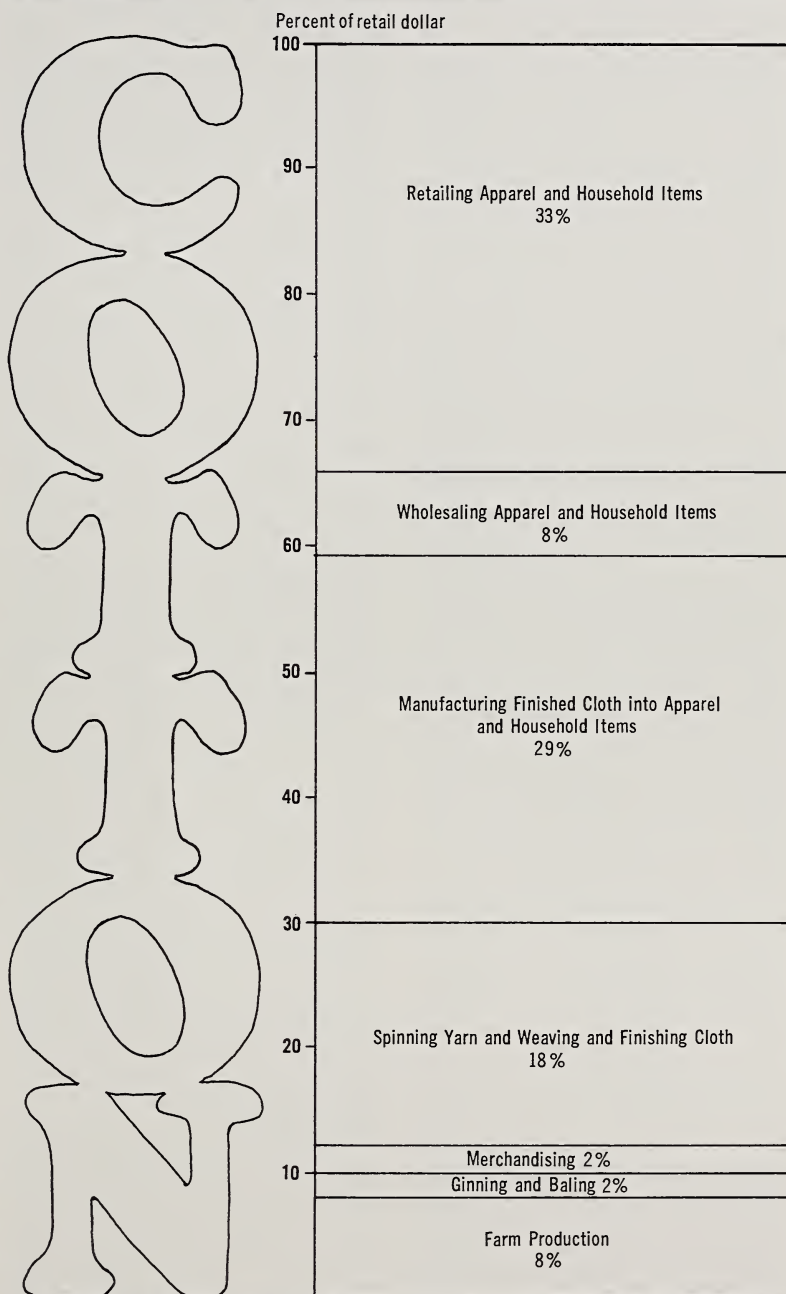
Operating at less than full capacity, unit savings would be somewhat greater but total savings would be less. Example: When operating at only 60 percent of full capacity, unit savings in the 12-bale gin would be 33 cents a bale. Total savings, however, would be only \$1,830 because of the reduced volume ginned.

Future development of technologies that save labor and power will undoubtedly make even greater savings available.

Reductions of up to 40 percent in crew size and as much as 25 to 30 percent in horsepower are a possibility. And if Midsouth ginners could effect such advances without undue increase in capital investment, their annual savings would be around \$8,000 for a 12-bale gin. (14)

**WHERE DOES THE COTTON DOLLAR GO?** In 1967 about 88 cents of the consumer's cotton dollar went to the men who turn a bale of cotton into a mattress cover or miniskirt and make them available to the consumer in a retail store.

The farmer — who plows, plants, and picks the cotton — got about 8 cents. What's left of the dollar goes to the men who gin and package the raw cotton, and to those who help move the lint cotton from production areas to textile mill centers. (15)



U.S. DEPARTMENT OF AGRICULTURE

NEG ERS 5502-68(2)

## Longer, Stronger Fibers Could Boost Southeastern Cotton's Sales Appeal

Southeastern cotton producers are sitting right in the middle of the biggest textile market for raw cotton in the United States.

Growers' sales, however, aren't as big as their proximity to the market would imply. In recent years, the proportion of southeastern cotton moving into CCC stocks has been higher than for cotton from other areas, because it was not as acceptable to manufacturers at existing prices.

To see why southeastern cotton sales are sagging, ERS researchers—in cooperation with economists in the agricultural experiment stations of South Carolina, Georgia, and Alabama—recently surveyed 98 representative textile firms in the United States.

The researchers concentrated their attention on two major factors affecting the manufacturers' demand for cotton: Current fiber use and desired cotton qualities.

The 98 mills surveyed used about 6 million bales of fiber in 1964. More than 85 percent of this was cotton.

The five Central Belt States (Arkansas, Louisiana, Mississippi, Missouri, and Tennessee) produced 36 percent of the cotton consumed by the mills. The four southeastern States (North Carolina, South Carolina, Georgia, and Alabama) supplied 14 percent. All other nonirrigated areas accounted for 22 percent. Far Western irrigated cotton was 17 percent. The balance was made up of miscellaneous fibers.

Southeastern cotton represented about a third of the fibers used in medium-coarse yarn numbers (17s to 29s), in which quality requirements—especially strength—were not very high.

This broad group of yarns accounts for more than a fourth of total cotton textile production. Most of the work clothing fabrics,

sheeting, industrial fabrics, towel-ing, and a variety of other products are made from medium-coarse yarns.

In coarser and finer yarns, however, southeastern cotton was not prominent. It represented less than 4 percent of the fibers used in yarn numbers 16 and coarser for cotton cordage, mop yarn, tufting and rug yarns, denims, coarse work clothing, and so forth. Shorter cotton from other areas was satisfactory and also cheaper.

In finer yarns (30s to 45s), where length and strength were more important, southeastern cotton made up only 9 percent of the cotton used, compared with 56 percent for Central Belt cotton. This group of yarns represents 45 percent of total cotton textile production. The principal end products are print cloth, fine sheeting, dress goods, shirting, gauze, finer grades of work clothing, and carded and combed knitting yarns.

Less than 2 percent of the fiber used in yarns finer than 45s came from the Southeast. Products from these yarns (which account for 10 percent of textile output) include fine broadcloth, batiste, fine dress goods, windowshade cloth, typewriter ribbons, and sewing and embroidery thread.

In relating quality requirements of manufacturers to southeastern cotton, over half the surveyed firms said the strength was too low for their needs. And about a fourth required longer staples. (Southeastern cotton now averages between  $1\frac{1}{32}$  and  $1\frac{1}{16}$  inches in staple length.) The Micronaire (fineness) of southeastern cotton was generally satisfactory.

An increase of  $\frac{1}{32}$  inch in southeastern's staple length, along with greater strength and length uniformity equal to Central Belt cotton, should make most southeastern cotton suitable for yarns up to 45s—and thereby substantially increase its market potential. (24)

## Cotton Industry's Byproduct Gets New Role as Potential Food Source

Cotton is one of the very few crops that provides both food and clothing.

With predictions calling for the world's population to top 7 billion in about 30 years, economists and nutritionists are now eyeing a protein-rich byproduct of the cotton industry with renewed interest.

And cottonseed flour is just that.

USDA scientists say that 100 tons of cottonseed can yield about 36,000 pounds of high-quality edible flour containing 65 percent protein. Economists say it is feasible for the United States to produce 2 million tons annually and the rest of the world, 6 million.

Three promising methods for producing such a flour are now being explored (technically speaking: air classification, aqueous acetone extraction, and hexane extraction by an adaptation of the liquid cyclone process).

Meanwhile, cottonseed crushers are looking for ways to bolster their sagging sales of cottonseed oil.

In the late 1930's, cottonseed oil accounted for nearly two-thirds of all fats and oils used in shortening, and for about half the oil used in margarine. Now the proportion in shortenings has dropped to a little over one-tenth, and that in margarine to less than one-tenth.

Smaller supplies from smaller cotton crops have been a factor. But a big shift to lower-priced vegetable oils—chiefly soybean oil—is the main reason for the slump.

Fortunately for cottonseed crushers, there's been an upswing in use of their oil for such products as mayonnaise, salad dressing, cooking oils, and related items. It's risen from 30 percent in 1950 to about 60 percent in 1965. (25)



## Taiwan: Island in the Economic Sun

*Often in the headlines because of its role in the East-West struggle, Taiwan has nevertheless shown a continuous agricultural growth. Can other countries do likewise?*

Eight years of war involvement, followed by rapid population growth in an area of limited land and resources, could be enough to set a country's progress back indefinitely.

Not Taiwan, however. This island, located off the southeast coast of Mainland China, has made a phenomenal recovery from each of the national and international crises it has weathered.

Its national income growth rate has averaged 7.6 percent annually since 1952, while the per capita income growth rate has averaged 4.2 percent per year.

Taiwan is not much larger than the State of Maryland. It has only 0.17 acre of cultivable land per capita, compared with about 2 acres in the United States. But the average value of crop production per acre is now about six times higher than in this country.

Restored to Chinese sovereignty in 1945, and the seat of government of the Republic of China since 1949, Taiwan has received more than \$1.5 billion in U.S. aid since 1951.

By 1965, however, the economy had strengthened so much that further aid funds were not necessary. In 1967 Taiwan purchased nearly \$333 million worth of U.S. commercial exports—one-third of them farm goods. This thriving island shows signs of becoming an even bigger cash customer for U.S. products.

Taiwan owes much of its present economic health to three major developments.

The first was land reform. This included reduction of land rentals, the 1949 sale of government-

owned land to farmers, and the land-to-the-tiller program in 1953.

The second was reorganization in 1953 of farmers' associations and cooperatives to put them under the direct control of farmers.

The third was agricultural development planning, launched in 1953 with the first of successive 4-year plans.

Technological innovations were introduced in stages. Agricultural experiment stations carried out the basic research. District agricultural improvement stations made field tests. And field demonstrations on farms convinced farmers that the new method, the new fertilizer, pesticide, seed, or breed of animal would be valuable to them.

Field demonstrations, for example, showed that rice yields could be increased 30 percent. Farmers thus were able to achieve increases of 15 to 20 percent in a single year.

Increased domestic demand, government enterprises, cooperatives, and farmers' associations have combined to maintain the product prices paid to the Taiwanese farmer. Price levels have been high enough for him to make profitable use of fertilizers, new improved seeds, and other inputs that help increase crop and livestock yield.

Can Taiwan's success be imitated in other Asian countries as well? The answer depends in good part on the various physical, political, and economic conditions unique to each country. What works in one country may not work in another.

Even so, the nation offers an inspiring lesson to other developing nations.

Taiwan's experience indicates that farm people do respond to economic incentives. They will give up age-old methods for more productive and profitable ones.

And they'll shift readily from one crop to another if it means more money for them. (16)



## Step-Up in Indian Foodgrain Output Seems Feasible Over Shortrun Period

India appears to be on the move agriculturally.

It has passed through the worst two consecutive drought years of the century. And it is now making an effort to bring about long-needed improvements in agriculture.

Raising the output of foodgrains, which make up about 75 percent of the country's farm output, is high up on the agenda.

The question is: How much will India have to accelerate production to achieve a minimal level of self-sufficiency in foodgrains within the next decade? Can the country do it?

The answer: A foodgrain production gain of 5 percent a year would be needed. It appears to be attainable and economically feasible—given proper policies and programs to provide inputs, supporting services and incentives, and a reasonable degree of cooperation from weather.

This is the gist of a recent study by the Economic Research Service, in cooperation with the U. S. Agency for International Development.

How does the study arrive at the 5-percent desirable growth rate?

First off, India must of necessity boost its foodgrain output by at least 2.5 percent a year, and possibly 2.7 percent, to maintain

its present inadequate degree of self-sufficiency and the per capita consumption it allows.

A further increase of 1 percent or more a year is needed to meet the stronger demand that rising per capita incomes portend.

Still another gain will be necessary to replenish now-exhausted contingency stocks of foodgrains; to build up buffer stocks that can be used to stabilize market supplies and prices; and to advance closer to foodgrain self-sufficiency.

A shortrun span of 3 crop years—1967/68 (now being harvested) through 1970/71 (end of India's fourth 5-year plan) is the pilot period chosen for the projected 5-percent annual acceleration.

As projected, it means that foodgrain output will be boosted to 108 million tons in 1970/71. Attainment of this annual growth rate would represent a sharp upturn in the historical trend.

What measures are suggested to achieve the goal?

In the next 3 years all major inputs except land will have to be increased even more than 5 percent a year. The projected annual rates of growth for one possible combination are:

—1.0 percent for total area planted to foodgrains;

—5.9 percent for irrigated foodgrain land;

—29.5 percent for the area under high-yield varieties; and

—19.5 percent for fertilizer.

Transportation also will have to be vastly improved and expanded to get farm inputs to the cultivator and then move foodgrain harvests to the consumer. (India now has only about 0.7 of a mile of road per square mile of cultivated land, compared with about 4 in the United States, Japan, the United Kingdom, and France.)

Agricultural credit, price support policies, research, and education are among many other factors which will help determine the speed of foodgrain acceleration.

India has consistently fallen short of its foodgrain goals and needs to date. Even so, its production record since Independence in 1947 looks good compared with that in the preceding half century.

Technology has helped measurably.

This is recognized by India itself, and by international development agencies. Their programs and policies reflect this.

India's recent advances in farm technology stem largely from new variety breakthroughs for rice, wheat, corn, grain sorghums, and millet.

New, high-yielding varieties of these cereals are now available to farmers in relatively large quantities. They have all come into commercial use in India within the past 3 or 4 years. India's own research, and the transferability of varieties grown elsewhere, has made this possible. (17)

### Foreign Spotlight

**GREECE.** The Greek Government has accepted a 12-year contract with an American company to foster economic development by attracting private investments of \$240 million by 1970 and \$840 million by 1978. The company has already established a handicraft industry, drafted an irrigation project, and recommended investment of about \$50 million for 1968 projects.

**INDIA.** The United Arab Republic, Yugoslavia, and India recently signed a 5-year trade agreement. This April 1, duties were cut about 40 percent on 500 items traded by the countries. India exports tea and tobacco to the UAR and imports Egyptian cotton and rice. Yugoslavia buys Indian coffee, leather, and textile products. India imports Yugoslav machinery. An additional 10-percent reduction is planned for April 1, 1969. (26)



## Big Freeze For Farm Food



*Since the middle of the last century, scientists have worked on perfecting food freezing. Today, only a few foods can't be bought in an easy-to-use frozen variety.*

Even the Romans knew that ice could preserve food. The problem was preserving the ice.

So sun drying, salting, and smoking remained the most efficient ways to protect the food supply—until science stepped in about a century ago to prove the feasibility of freezing food.

Progress was slow at first, but in the past 25 years the frozen food industry has swelled its output from a mere 580 mil-

lion pounds to over 11 billion pounds in 1966.

By 1976, some envisage a frozen food output of 24.6 billion pounds—a 124 percent gain over 1966.

Today, about the only important fresh products not being frozen commercially are bananas, pears, tomatoes, lettuce, and other salad greens. But it probably won't be long before food scientists solve the problems of freezing them, too. They're already working on tomatoes.

In recent years frozen cooked and prepared foods, to be reheated at home, have been rapidly winning consumer acceptance. These include full course

dinners, casserole dishes, specialty foreign style foods, and bakery products.

Here's a brief look at the history and present situation of frozen foods in the United States.

**Poultry.** Commercial freezing of poultry began around 1865, and in 1870 six carloads of chickens were frozen in Wisconsin and shipped to the New York market.

Today, about 25 percent of our total poultry production is frozen—mainly turkeys, ducks, and geese. This enables producers to cope with the more seasonal demand for these birds.

The year-round demand for

fresh young chickens is such that only about 10 or 11 percent of them are frozen commercially.

Many homemakers still prefer to buy chicken fresh and store it in the freezer at home. But recent studies show that commercially frozen chickens are gaining in popularity.

Use of all classes of poultry has risen more rapidly in the last 20 years than that of any other food category—from 25.5 pounds per capita in 1945 to 44 pounds in 1966.

**Eggs.** In 1890 someone decided to try freezing eggs—removing cracked or soiled shells and freezing the contents. When bakers used them and found they worked as well as freshly broken eggs, their acceptance was assured.

Today preshelled frozen eggs are sold in quantity to manufacturers of food products. Eliminating the breakage step reduces the manufacturer's processing and labor costs.

**Red meats.** Trappers and early settlers and farmers froze red meat in cold climates to preserve it through the winter. Snow and pond ice came in handy.

In 1867 the first successful shipment of frozen beef was made in the United States—from Indianola, Tex., to New Orleans.

Production of frozen meats grew from 20 million pounds in 1945 to 450 million pounds in 1964 and it continues to climb. But it still makes up only a small part of annual per capita consumption—only 2 pounds in 1965, out of a total of 170 pounds.

Much of the frozen output goes to institutional users in the form of patties, cutlets, and other portion control cuts.

**Deciduous fruits and berries.** These include strawberries, cherries, peaches, apples, and other fruits and berries. Most of the frozen pack is used by the food manufacturing industry.

By the late 1920's many fruits

and berries were being frozen during the peak of the season for later use in manufactured jams, jellies, ice cream, and bakery goods.

Per capita consumption of fruits and berries in all forms has changed little over the past 20 years—though canned use has risen while fresh use has dropped.

Rate of growth in consumer use of frozen fruits and berries has been relatively slow, partly because consumers have become accustomed to the high quality and convenience of canned products.

Research is underway on a new thaw pouch—similar to

that already used for cooking some frozen vegetables—which should encourage wider home use of frozen fruits and berries.

**Vegetables.** Early efforts at freezing vegetables were not very successful. Discoloration and off-flavor presented problems to be overcome.

In 1929 it was found that blanching would stop the enzyme action that caused the deterioration, and now about 10 percent of all the vegetables we eat are bought in frozen form.

Sales of prepared frozen vegetables continue to grow in value at a rate of about 20 percent annually.

Asparagus, lima beans, snap

**WHICH FOOD WHICH WAY?** Are we drinking more milk today than yesterday? Eating more poultry, fewer eggs? The table below shows the change in per capita consumption during 1947-67 for these and other foods.

Over the years, our total per capita food consumption, on a retail weight equivalent basis, has trended downward. Last year, each American ate an average of 1,434 pounds of food—10 percent less than in 1947. Part of this decline reflects technological change, since food is sold in more concentrated form now than it formerly was.

The drop in poundage showed up most sharply in fresh fruits and vegetables. On the other hand, big gains were recorded in per capita consumption of poultry and processed fruits and vegetables.

When consumption of all food is tallied on the basis of constant retail prices, however, per capita food consumption has risen 3 percent in the past 20 years. It has gone up because people are eating relatively higher priced foods (such as meat) and more commercially processed foods. These changes, in turn, reflect rising incomes, changes in relative prices, and changes in consumer tastes. (19)



Percentage Up

CHANGE  
IN  
PER CAPITA  
CONSUMPTION  
FROM  
1947 TO 1967



Percentage Down

268	Frozen vegetables	Fresh fruits	42
112	Poultry	Melons	35
35	Fats and oils (excluding butter)	Fresh vegetables	25
		Flour and cereals	18
27	Processed fruits	Potatoes and sweetpotatoes	18
18	Canned vegetables	Coffee, tea, and cocoa	18
11	Fish	Dairy products (including butter)	14
6	Meat	Eggs	12
		Sugars and sweeteners	1
		Beans, peas, nuts, and soya products	1



beans, broccoli, corn, green peas, and spinach make up over three-fourths of the frozen pack. Per capita consumption of fresh and processed vegetables has not changed much over the last 20 years—but frozen use has risen from 7 to 29 percent of the total.

**Potatoes.** In a class by themselves, frozen potato products—especially French fries—have grown in popularity to become one of the leading frozen foods.

Production soared from 3 million pounds in 1947 to 1.2 billion pounds in 1965. Most of the sales are for institutional and restaurant use. Only 20 percent of the 1964 pack went to retail stores.

**Citrus fruits.** The newest products in the frozen food market, concentrated citrus juices did not attain any significant status until after 1945.

In recent years, however, nearly three-fourths of the frozen citrus pack has been concentrated orange juice. And another 15 percent, lemonade.

Use of frozen juices has more than doubled since 1950, reaching the equivalent of almost 30 pounds of fresh fruits per person in 1965. (18)

## Population Growth, Not Taste Shifts, Affects Total Food Consumption Most

In affluent countries such as the United States, people tend to eat pretty much the same total amount of food year in and year out.

Population numbers as a whole—rather than individual tastes—therefore account for most of any increase in total demand for farm products. Thus, total food consumption tends to parallel population growth.

How fast has our Nation been growing? What changes have there been in food consumption? And what do these historic trends portend for the future?

### Hate to Bake?

The easier it is to prepare and serve, the better we like it.

This seems to be the case, at least with wheat products, according to the most recent nationwide food consumption survey made in 1965.

Fewer cakes and biscuits were being baked "from scratch" in 1965 than 10 years earlier. Our use of flour, cereals, and flour mixes per capita dropped off about 19 percent during the decade.

Per capita consumption of "ready-made" bread and baked goods however, was 15 percent more in 1965 than in 1955.

Still, per capita use of grain products in all forms fell 1 percent in 1955-65.

Twelve cents of each food dollar went for grain products in 1965, just a bit more than our comparable outlay in 1955. And baked goods accounted for the entire increase. (20)

In 1900, Uncle Sam's people numbered 76 million. They increased to 100 million by 1915. But immigration limitations and low birthrates in the 1930's slowed population growth. It took until 1949 to reach 150 million.

A relatively high birthrate in the 1950's caused the U.S. population to spurt upwards. By 1967 it totaled over 200 million.

The growth rate of our population has varied considerably. During 1930-41 (mostly the depression years) the average annual rate of growth was only 0.7 percent. But from 1947 to 1962, the rate of growth averaged 1.8 percent yearly.

Meanwhile, what's happened to per capita food consumption?

Average food consumption per person declined from 1,589 pounds (retail weight equivalent) during 1909-14 to 1,420 pounds during 1962-67.

The decline can be attributed in part to the fact that food is sold in more concentrated form now than formerly—and also in part to changes in food form that

technology has wrought, and to shifts in food preferences.

Meanwhile, the U.S. Per Capita Food Consumption Index has increased. This index reflects per capita consumption of foods in pounds (retail weight equivalent) multiplied by their respective retail prices in a base period (1957-59 is the current base period). This index has risen from an average of 87.3 in 1909-14 to 101.9 in 1962-67.

Why? Mainly because people have been eating more of relatively higher-priced foods (such as meat) and also because they've been eating more commercially processed foods instead of fresh items or foods with little processing.

These changes, in turn, are due to growing incomes, changes in relative prices, and shifts in tastes.

From 1950 to 1967, the average increase in the index of total food consumption averaged about 1.8 percent per year. But on a per capita basis, the increase is only 0.2 percent per year.

Regardless of how food consumption is measured, the increase in population provides most of the additional demand for farm products in the long run.

The importance of population growth to total food consumption can be illustrated by some examples:

Per capita consumption of refined sugar has remained relatively stable at about 97 pounds since 1947. Thus, virtually all of the increase in total domestic use—from 6.9 million tons in 1947 to 9.7 million in 1967—came from population expansion.

In the case of pork, per capita consumption declined from 65 pounds (retail weight) in 1947 to 59 pounds in 1967. But total pork consumption rose from 4.6 to 5.8 million tons because population growth more than offset the per-person decline in consumption of pork products. (27)

**CROP HAIL INSURANCE, 1966: VOLUME, COST, INDEMNITIES.** L. A. Jones, Farm Production Economics Division. ERS-369.

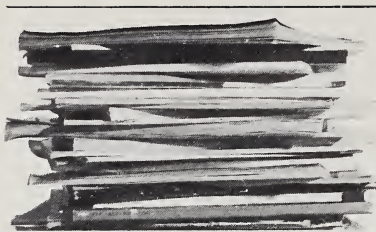
Crops on some 500,000 farms are estimated to be insured each year against damage from hail. The number of policies written is larger than the number of farms. Why? Because more than one policy per farm is written where landlords and others have financial interests in the crop along with the operator.

**A COMPARISON OF RETURNS TO POULTRY GROWERS . . . UNDER CONTRACT . . . OPERATING INDEPENDENTLY.** W. W. Gallimore and J. G. Vertrees, Marketing Economics Division, MRR-814.

A major development in the growth of the poultry industry is the increasing use of contracts to coordinate production and marketing activities. An estimated 95 percent of the chicken broilers, 50 to 60 percent of the turkeys, and 30 to 35 percent of the eggs are now produced under contractual agreements.

**ECONOMICS OF AGRICULTURE—REPORTS AND PUBLICATIONS ISSUED OR SPONSORED BY USDA'S ECONOMIC RESEARCH SERVICE, OCTOBER 1966–SEPTEMBER 1967.** Compiled by Irene L. Hardaway.

A selected list of over 400 research publications in the field of agricultural economics are included.



## RECENT PUBLICATIONS

*The publications listed here are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective states.*

**THE WORLD AGRICULTURAL SITUATION, REVIEW OF 1967 AND OUTLOOK FOR 1968.** Foreign Regional Analysis Division. FAER-38.

The past year was one of record output for world agriculture. Per capita agricultural output in the less developed countries (excluding communist Asia) increased by about 5 to 6 percent in 1967.

**THE EVALUATION OF INVESTMENT OPPORTUNITIES—TOOLS FOR DECISION MAKING IN FARMING AND OTHER BUSINESSES.** A. J. Walrath, Economic Development Division in cooperation with W. L. Gibson, Jr., Virginia Polytechnic Institute. AH-349.

Proper analysis of investment opportunities can encourage investments that bring about economic growth of an area.

In a dynamic economy, the farmer or business manager is constantly faced with alternative uses of his resources. In evaluating these uses, he must be concerned with the various costs and returns that are involved. Here is a discussion of the mathematical procedures for comparing incomes and costs that occur at different times.

**UGANDA'S AGRICULTURAL ECONOMY IN BRIEF.** C. B. Singleton, Foreign Regional Analysis Division. ERS-For. 210.

Uganda's major cash crop is coffee, for which the United States is the major customer.

**TRENDS IN THE USE OF MAJOR FERTILIZER NUTRIENTS ON MICHIGAN CROPLAND AND PASTURE.** R. D. Duvick, Farm Production Economics Division. AER-88.

Information on amounts of fertilizer use by crop and region, changes that have occurred, and implications for further changes are reported herein.

### *Numbers in parentheses at end of stories refer to sources listed below:*

1. R. N. Van Arsdall, Costs and Returns of Cattle Feeding, Ill. Agr. Expt. Sta. AE-4159 (P\*); 2. C. Brader (SM); 3. W. A. Halbrook, O. L. Walker, and P. L. Strickland, Income Possibilities and Resource Adjustment Potentials on Livestock Farms, East Central and South Central Oklahoma, Okla. Agr. Expt. Sta. PS-574 (P\*); 4. T. Mullins and J. R. Ballard, Fertilizer Use on Crops and Pastures in Arkansas, 1959 and 1964, Ark. Agr. Expt. Sta. RS-166 (P\*); 5. W. McMartin and R. C. Bergan, Irrigation Practices and Costs in North Dakota, N. Dak. Agr. Expt. Sta. (M\*); 6. R. D. Krenz, L. W. Schaffner, and E. Valdivia, Seeding Cropland to Grass in Southwestern North Dakota, N. Dak. Agr. Expt. Sta. Bul. 470 (P\*); 7. E. D. Solberg, Experience with County Zoning (S); 8. E. G. Youmans, Plans and Expectations for Old Age: A Study of Middle-Aged Kentuckians, Ky. Agr. Expt. Sta. (M\*); 9. Economic Development Division (SM); 10. T. E. Fuller, Manufacturing in Appalachia: Trends and Prospects, Pa. Agr. Expt. Sta. (M\*); 11. Marketing and Transportation Situation, MTS-164 (P); 12. R. G. Barlowe, "Cotton and Man-Made Fiber Fabric Blends," Cotton Situa., CS-234 (P); 13. Cotton Situation, CS-233 (P) and Supplement for 1966 to Statistics on Cotton, Stat. Bul. 329, Supp. (P); 14. C. A. Wilmot and Z. M. Looney, Importance of Minimizing Labor and

Power Costs in Cotton Gins (M); 15. C. C. Cable, Jr., Marketing Cotton and Cotton Textiles, ERS-317 (P); 16. R. P. Christensen, Taiwan's Agricultural Development: Its Relevance for Developing Countries Today (M); 17. W. E. Hendrix, J. J. Naive, and W. E. Adams, Accelerating India's Foodgrain Production, 1967-68 to 1970-71 (M); 18. R. V. Enochian, Chapter 1, Volume 3, of the forthcoming 4th edition of The Freezing Preservation of Foods, Avi Publishing Co.; 19. National Food Situation, NFS-122 (P); 20. Wheat Situation, WS-202 (P); 21. The Dairy Situation, DS-319 (P); 22. Farm Income Situation, FIS-209 (P); 23. Poultry and Egg Situation, PES-250 (P); 24. E. W. S. Calkins, and H. C. Sparlock, Factors Affecting the Use of Southeastern Cotton and Competing Fibers, S. C. Agr. Expt. Sta. Bul. 632 (P\*); 25. H. R. Linstrom, Trends in the Utilization of Cottonseed Oil (S); 26. Foreign Regional Analysis Division (SM); 27. F. D. Gray, "Population and Food Consumption," Natl. Food Situa. NFS-123 (P); 28. Marketing and Transportation Situation, MTS-168 (P).

*Speech (S); published report (P); unpublished manuscript (M); special material (SM); State publications may be obtained only by writing to the experiment station or university cited.*



# ECONOMIC TRENDS

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	YEAR	1967			1968
				FEBRUARY	DECEMBER	JANUARY	FEBRUARY
<b>Prices:</b>							
Prices received by farmers	1910-14=100	242	252	252	253	255	258
Crops	1910-14=100	223	224	223	231	232	229
Livestock and products	1910-14=100	258	276	276	272	274	282
Prices paid, interest, taxes and wage rates	1910-14=100	293	342	338	344	346	348
Family living items	1910-14=100	286	321	319	325	327	329
Production items	1910-14=100	262	287	286	287	288	290
Parity ratio		83	74	75	74	74	74
Wholesale prices, all commodities	1957-59=100	—	106.1	106.0	106.8	107.2	107.8
Industrial commodities	1957-59=100	—	106.3	106.0	107.4	107.8	108.2
Farm products	1957-59=100	—	99.7	101.0	98.9	99.0	101.0
Processed foods and feeds	1957-59=100	—	111.7	111.7	111.5	112.4	113.1
Consumer price index, all items	1957-59=100	—	116.3	114.8	118.2	118.6	—
Food	1957-59=100	—	115.2	114.2	116.2	117.0	—
<b>Farm Food Market Basket: <sup>1</sup></b>							
Retail cost	Dollars	983	1,081	1,075	1,087	1,099	—
Farm value	Dollars	388	413	413	408	416	—
Farm-retail spread	Dollars	595	668	662	679	683	—
Farmers' share of retail cost	Percent	39	38	38	38	38	—
<b>Farm Income:</b>							
Volume of farm marketings	1957-59=100	—	124	93	135	—	—
Cash receipts from farm marketings	Million dollars	32,247	42,471	2,705	3,800	3,600	2,900
Crops	Million dollars	13,766	18,310	891	1,900	1,600	1,000
Livestock and products	Million dollars	18,481	24,161	1,814	1,900	2,000	1,900
Realized gross income <sup>2</sup>	Billion dollars	—	48.9	—	<sup>2</sup> 48.1	—	—
Farm production expenses <sup>2</sup>	Billion dollars	—	34.4	—	<sup>2</sup> 34.2	—	—
Realized net income <sup>2</sup>	Billion dollars	—	14.5	—	<sup>2</sup> 13.9	—	—
<b>Agricultural Trade:</b>							
Agricultural exports	Million dollars	4,105	<sup>3</sup> 6,386	514	564	546	—
Agricultural imports	Million dollars	3,977	<sup>3</sup> 4,455	354	388	415	—
<b>Land Values:</b>							
Average value per acre	1957-59=100	—	<sup>4</sup> 160	—	—	<sup>5</sup> 166	—
Total value of farm real estate	Billion dollars	—	<sup>4</sup> 182.5	—	—	<sup>5</sup> 188.8	—
<b>Gross National Product: <sup>2</sup></b>							
Consumption <sup>2</sup>	Billion dollars	457.4	785.0	—	807.3	—	—
Investment <sup>2</sup>	Billion dollars	294.2	491.7	—	501.8	—	—
Government expenditures <sup>2</sup>	Billion dollars	68.0	112.1	—	120.8	—	—
Net exports <sup>2</sup>	Billion dollars	92.4	176.3	—	181.7	—	—
	Billion dollars	2.7	4.8	—	3.0	—	—
<b>Income and Spending: <sup>6</sup></b>							
Personal income, annual rate	Billion dollars	365.3	626.4	612.6	49.3	650.9	658.4
Total retail sales, monthly rate	Million dollars	17,098	26,125	25,470	26,470	27,039	27,433
Retail sales of food group, monthly rate	Million dollars	4,160	6,011	5,942	6,179	6,228	—
<b>Employment and Wages: <sup>6</sup></b>							
Total civilian employment	Millions	63.9	74.4	74.1	75.6	75.2	75.7
Agricultural	Millions	5.7	3.8	3.9	4.2	4.0	4.1
Rate of unemployment	Percent	5.8	3.8	3.7	3.7	3.5	3.7
Workweek in manufacturing	Hours	39.8	40.6	40.3	40.7	40.2	40.7
Hourly earnings in manufacturing, un-adjusted	Dollars	2.12	2.83	2.79	2.91	2.95	2.95
<b>Industrial Production: <sup>6</sup></b>	1957-59=100	—	158	157	162	161	161
<b>Manufacturers' Shipments and Inventories: <sup>6</sup></b>							
Total shipments, monthly rate	Million dollars	28,745	44,912	43,771	48,342	48,058	—
Total inventories, book value end of month	Million dollars	51,549	82,425	79,105	82,425	82,858	—
Total new orders, monthly rate	Million dollars	28,365	45,166	43,390	49,660	47,376	—

<sup>1</sup>Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1969-61—estimated monthly. <sup>2</sup>Annual rates seasonally adjusted fourth quarter. <sup>3</sup>Preliminary. <sup>4</sup>As of March 1, 1967. <sup>5</sup>As of November 1, 1967. <sup>6</sup>Seasonally adjusted.

SOURCES: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

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## Two Cents Off

What is in the market basket for the farmer?

In 1967, he received an average of 38 cents of the consumer's food dollar spent on the market basket of farm foods.

Thus far in the 1960's the farmer's share has ranged from 37 to 40 cents. In 1966, when both farm and retail prices rose sharply, the farmer received 40 cents.

"The market basket" is made up of 63 foods purchased in retail food stores. These foods represent all food products, such as meat, dairy products, and fruits and vegetables, that originate on U.S. farms.

Following the sharp rise in farm prices in 1966, the farm value of the market basket foods declined 7 percent in 1967. The farm value of all major product groups, except dairy, were lower.

About half the drop in returns to farmers in 1967 was reflected in lower retail food prices. The retail cost of the market basket declined about 1 percent in 1967 from the record level in 1966.

The drop in the retail cost was less than that in returns to farmers because of an increase in the marketing spread—that is, the gross margins received by marketing firms for assembly, processing, transporting, and distributing products in the market basket.

The increase in the marketing spread continued a trend that has prevailed for over a decade. Except for 1965, marketing spreads have increased each year since 1950. However, average annual increases have been less in the 1960's than in the 1950's. (28)

# THE FARM INDEX

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